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ABSTRACT

This study examined the relationship of nonverbal encoding and decoding skills to the level of exposure to television. Subjects were children in second through sixth grade. Three nonverbal skills (decoding, spontaneous encoding, and posed encoding) were assessed for each of five emotions: anger, disgust, fear or surprise, happiness, and sadness. In the decoding task, subjects identified which of the five emotions were being expressed in 20 videotaped facial expressions. Spontaneous encoding ability was assessed by having subjects view movie clips selected and pretested to elicit one of the five emotions. While subjects watched these clips, their nonverbal reactions were videotaped and later shown to judges who identified which emotion was being expressed in each display. Posed encoding ability was collected by having subjects use facial expressions to express each of the five emotions. Subjects also kept a one-week television viewing log. Analysis showed that level of exposure to television was associated with nonverbal behavioral skills. Subjects who watched television at high levels were significantly more accurate when encoding and decoding emotions that appear frequently on television shows than for emotions that appear infrequently. These results support the hypothesis that television viewing is associated with the ability to decode and encode certain emotions. (Contains 24 references.) (MM)

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Socialization Processes in Encoding and Decoding: Learning Effective Nonverbal Behavior

Flip on your television set one evening during the prime time hours. On this occasion, though, don't follow your typical practice of immediately turning to your local PBS station. (I feel I need to mention this, because, assuming you're like most of my colleagues, if you don't first inform me that you never watch any TV at all, you'll probably say that you only watch public television stations.)

If you happen upon one of the top ten programs--operationally defined as those shows that the most people watch, as reported by the A.C. Neilson Company--turn down the sound (you'll thank me for this), and look at what is happening on your monitor. In almost every case, you'll find a veritable deluge of nonverbal behavioral cues cascading across the screen. People will be smiling from ear to ear, frowning, with their brows deeply furrowed, or perhaps even weeping copiously, displaying the depths of despair. In general, the characters likely will show a range of nonverbal behavioral cues meant to convey heart-felt emotions.

We should not be particularly surprised at the frequency and intensity of emotional displays expressed in television shows, as well as in other media such as movies. After all, a staple of every acting class is training in the use of nonverbal behavior. Actors from the time of the ancient Greeks have been taught that nonverbal behavior is a critical component in the display of emotion.

Scientists, of course, have also noted the importance of nonverbal behavior. From the time of Darwin, a long history of research shows that nonverbal behavior plays a central role in everyday social interaction (e.g., Feldman & Rimé , 1991). Our ability to understand others' communications, and our responses to them, are based in large measure on the ability to comprehend and make use of the nonverbal behavioral cues displayed during social interaction.

By now, clear evidence exists that basic emotions are both encoded (i.e., produced) and decoded (i.e., read) universally across cultures via nonverbal behavioral cues (Ekman & O'Sullivan, 1991). The research evidence is quite clear in suggesting that at least the fundamental emotions are displayed in a manner that is universal and genetically-determined.

However, people's nonverbal behavior is also shaped by their environment. For instance, considerable differences in the form and nature of nonverbal behavior appear due to differential socialization experiences. Consequently, display rules, the

norms prescribing the appropriateness of specific facial expressions, vary as a result of culture and social context (Ekman, 1984).

People's understanding of display rules are shaped by several socialization factors. For example, Amy Halberstadt (1986, 1991) has shown convincingly that a relationship exists between the general nonverbal expressivity of particular family environments and the nonverbal behavioral skills of people raised in the family. However, apart from Halberstadt's work on family influences in nonverbal behavior, there has been surprisingly little research directed at other sources of socialization in the determination of nonverbal behavioral skills. For example, although children spend considerable time with other children--an amount that increases with age--the role of peers in determining nonverbal behavioral skills has largely gone unexamined, with just a few exceptions (e.g., Smith, Foot, & Chapman, 1977).

As I implied earlier, one particularly powerful source of information relevant to the socialization of nonverbal behavioral skills is television. Most children are exposed to a tremendous amount of TV. For example, by the time a child born today reaches the age of 18, he or she will probably have spent more time watching television than in any other activity except for sleep (Liebert & Sprafkin, 1988). In addition, the content of the programs that children watch can hardly be labeled as innocuous. For instance, the average child between the ages of five and fifteen is exposed to no fewer than 13,000 violent deaths on television. Furthermore, although it is hard to establish incontrovertible cause-and-effect links, the evidence that there is an association between exposure to televised acts of aggression and subsequent aggression on the part of viewers is compelling (Wood, Wong, & Chachere, 1991; Berkowitz, 1993).

It is likely that the results of substantial exposure to television are not limited to the domain of aggression. Certainly, television provides a range of emotional displays. For example, in a study that Rene Houle and I conducted, we content analyzed the emotional displays found in a sample of the top-ten television shows watched by children aged six to eleven. (This sample included such shows as "Roseanne," the "Wonder Years," and the "Bill Cosby Show.")

Not only did we find a range of emotions displayed, but different emotions varied significantly in terms of how often they appeared. Moreover, the overall rate of emotional displays was substantial. During the average minute, the mean number of emotional expressions coded was 3.4. Extrapolating from that figure, an average one hour of viewing may include more than 200 instances of emotional expressions. Furthermore, although we didn't measure intensity of emotional display in our study, it appeared quite strong.

Television and socialization of nonverbal behavioral skills

Because television provides such a high frequency of emotional information, and typically displays it in an engaging and highly impactful manner, children are apt to learn a substantial amount from their exposure to the medium across a range of domains. In particular, we might hypothesize that much of the influence of television occurs in the realm of emotions, particularly with children.

Specifically, younger children may be unable to accurately comprehend the storylines of television programs on a cognitive level. Their lack of sophisticated cognitive ability may produce deficiencies in their proficiency to understand and retain details of complex storylines. Consequently, they may attend more to emotional information provided by nonverbal behavioral channels of communication (Collins, 1983; Parke & Slaby, 1983; Rule & Ferguson, 1986). In fact, their inability to understand plots adequately may lead them to be even more attentive to nonverbal behavioral information than if they were adept at understanding the storyline.

Viewing television may also produce the opportunity to rehearse social-emotional responses. Alan Fridlund has suggested that even when they are alone, people exposed to emotion-evoking stimuli may respond by implicitly imagining themselves in social situations (Fridlund et al., 1990). Furthermore, Saarni and Borg (1991) and Gordon (1989) argue convincingly that television may be related to the development of social-emotional understanding through observation of the emotional reactions displayed by show protagonists.

Taken together, this prior research suggests that the observation of nonverbal emotional displays on television can have powerful consequences on the socialization of nonverbal behavior in children. In order to test such a hypothesis, we conducted an experiment designed to examine the nonverbal behavior of children who vary in their level of exposure to television. We reasoned that children who watch relatively more television ought to have developed different nonverbal skills from those who watch relatively lower amounts.

More specifically, we reasoned that the unusually high frequency at which nonverbal emotional displays are presented on television may serve to improve a child's ability to both encode and to decode at least some emotions. By barraging viewers with thousands of prototypical nonverbal expressions, television has the potential to be a powerful force in modeling nonverbal displays. And because these nonverbal displays generally occur in a situational context that is appropriate for their expression, it is likely that television acts to improve viewers' ability to decode emotions as well.

Notice that I said that television should improve decoding and encoding for "some emotions". As you may have detected from your own television viewing, nonverbal displays of different emotions are not equally represented in television shows. This is particularly true in television shows that are popular among children. As we found in our own examination of nonverbal emotional displays on television, happy, sad, and anger expressions accounted for nearly 70% of the nonverbal behavioral expressions in our sample of television shows popular among children. On the other hand, surprise, disgust, and fear were displayed much less frequently. Taking these findings into account, we expected television viewing to be associated with encoding and decoding accuracy, but only for those emotions that are displayed on television most frequently.

In order to test the hypotheses that nonverbal encoding and decoding skills are related to level of exposure to television, Erik Coats, Shawn Parsons and I invited second through six graders to participate in an experiment at our laboratory on the University of Massachusetts campus.

For this study we selected five emotions for investigation: anger, disgust, fear/surprise, happiness, and sadness. The decision to use these emotions was based both on the extensive research suggesting that their nonverbal displays are relatively universal (Ekman & Oster, 1982; Ekman & Friesen, 1971), and on our research showing that great variability exists in the frequency with which these emotions are displayed on television.

Three different nonverbal skills were assessed for each of the five emotions: decoding, spontaneous encoding, and posed encoding. The decoding task in which subjects participated required them to identify which of the five emotion were being expressed in a series of 20 videotaped facial expressions. These facial expressions were obtained by unobtrusively videotaping college students while they viewed movies that elicited one of the five emotions. This task has been standardized in previous work (Custrini & Feldman, 1989) and has been shown to be a reliable measure of decoding ability.

Spontaneous encoding ability was assessed by having subjects view a series of movie clips that were selected and pretested to elicit one of the five emotions of interest. While subjects watched these movie clips, we videotaped their nonverbal reactions. In this way we were able to capture spontaneous nonverbal displays in response to five emotional experiences. These videotaped displays were then shown to groups of undergraduate judges who were instructed to identify what emotion was being expressed in each. The extent to which judges were able to discern the emotion of subjects' nonverbal displays constituted our measure of spontaneous encoding ability.

Finally, a measure of posed encoding ability was collected. Subjects were asked to simply look into a video camera and to use facial expressions to express each of the five emotions. These posed nonverbal displays were assessed in the same procedure used to evaluate spontaneous nonverbal displays.

In addition to their visit to our lab, we obtained a one-week television viewing log from each subject. For one week, we called each subject every evening to determine the television programs they had watched the previous day. On the basis of a median split of the hours reported in this log, subjects were divided into low viewing (10 hours or less, $\underline{M}$ = 6.0 hours) and high viewing (more than 10 hours, $\underline{M}$ = 18.9 hours) groups.

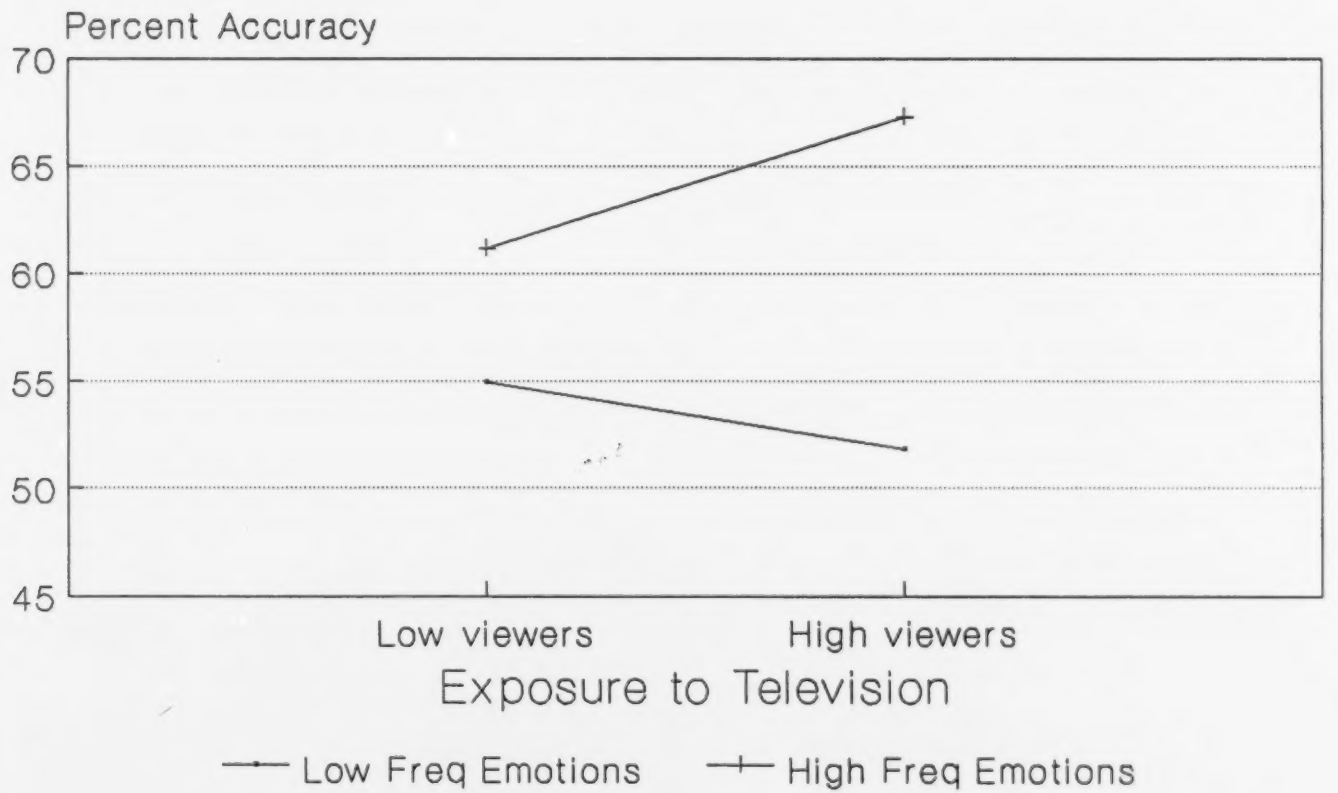
Preliminary analysis of the data showed that the manipulations designed to produce anger were not successful for a significant proportion of subjects. Specifically, 22 percent of the subjects reported feeling some other emotion after viewing the move clip designed to elicit anger. In addition, judges were able to reliably identify only a small proportion of nonverbal displays of anger even for those subjects who reported experiencing the emotion. These difficulties occurred exclusively with anger. Consequently, the emotion of anger was dropped from analysis, leaving two emotions that appeared on television with high frequency (happiness and sadness) and two that appeared with low frequency (fear/surprise and disgust).

Preliminary analyses indicated that the association between nonverbal accuracy and subject gender and age showed no association of consequence. Therefore, these factors were not included in the primary analysis of the data. Consequently, the major analysis conducted on the data was an analysis of variance that took into account TV viewing level, the three measures of nonverbal skill (decoding, spontaneous encoding, posed encoding), and the emotional display frequency.

The results showed that subjects, in general, were proficient encoders and decoders. For every group and subset of subjects, the mean measure of encoding and decoding was at above chance levels. However, as we predicted, level of exposure to television also was associated with nonverbal behavioral skill.

Specifically, level of TV viewing and emotional display frequency interacted, although at statistically marginal levels. Examination of the means and subsequent planned comparisons revealed the predicted pattern (Figure 1). As we hypothesized, subjects who watched television at high levels were significantly more accurate when encoding and decoding emotions that appear frequently on television shows than for those emotions that appear infrequently. On the other hand, for subjects who watched relatively little television, the difference between high- and low-frequency emotions was not significant.

Nonverbal Skills
High vs Low TV Viewers



These results provide clear support for the hypothesis that television viewing is associated with the ability to decode and encode certain emotions. Children in our study who watched the most television were more accurate when decoding and encoding emotions that are frequently displayed on television than emotions that are displayed infrequently. Because the same was not true for children who watched less television, it appears that heavy viewing may relate to one's ability to decode and encode certain emotions.

Of course this is a conclusion that we would like to draw. However, we are certainly in no position to rule out other interpretations. For example, we cannot guarantee that our high viewers watched the same shows (displaying the same distribution of emotions) that we found in our earlier survey. Furthermore, one could argue that the more a child enjoys experiencing happiness and sadness, the more likely they are to enjoy watching television. If these children who enjoy experiencing happiness and sadness are also especially good at decoding and encoding these emotions, the association between nonverbal skills and TV viewing could result from a child's natural preference for activities that provide the emotional experiences they enjoy.

A more serious concern of this study concerns the nature of our decoding and encoding tasks. Each of these tasks was presented in a video format. It could be argued that high television viewers are more comfortable with this particular format and so performed better on these tasks, but that they might not have an advantage in other, more natural situations. Unfortunately we do not as yet have the data necessary to rule out this possibility.

Training Nonverbal Behavioral Skills

As we've seen, it is clear that the degree of a child's television viewing is linked to his or her nonverbal behavioral skills. These data raise some intriguing possibilities. Specifically, if we assume that viewing relatively high amounts of television leads to more proficient encoding and decoding, then perhaps it would be possible to make use of this relationship to deal with children who have nonverbal deficiencies and increase their level of nonverbal skill.

Of course, I am not ready to suggest that we strap children on couches in front of TV monitors and force them to watch prime time television programs with the hope that their nonverbal behavioral skills will benefit as a consequence. However, it does seem possible that by carefully providing children with examples of specific types of nonverbal behavior, and providing them with feedback, their abilities might well improve.

Showing great prescience by somehow anticipating my current findings, a few years ago Lisa Beck and I actually carried out an experiment along these lines (Beck & Feldman, 1990). In an effort to teach children to be better decoders, we used a simple feedback procedure in which we had twelve-year-old children observe a series of samples of the nonverbal behavior of a person experiencing joy, sadness, or fear. After viewing each of the short, silent video clips of the behavior, we asked the children to judge which emotion was being displayed. In the experimental condition, the children were given verbal reinforcement if their response was correct. If they made an error, however, they were given feedback as to the actual emotion being displayed, and the video clip was played again. Children in the control condition received no such feedback.

The results showed a clear effect for the training procedure. Children receiving feedback performed significantly better than those who received none. However, the results also showed that the effectiveness of the procedure varied according to the children's gender and in terms of the particular emotion being decoded.

In sum, it proved possible to improve children's decoding effectiveness through the observation of others' nonverbal behavior. We might speculate that other types of nonverbal behavioral skills--such as spontaneous encoding and posed encoding--might also show improvements through didactic procedures.

Such work has enormous potential practical significance, particularly if we accept that a link exists between children's nonverbal behavioral skills and their social competence. If there is such a relationship, as data from other research I've conducted demonstrates (e.g., Philippot, Feldman & McGee, 1992), then by leading children to improve their encoding and decoding skills, we may induce improvements in their general social competence. I admit that we are leaping well beyond our data, but such speculations do not seem all that far-fetched.

Moreover, the findings I've talked about today also have implications for children whose social competence levels are so low that they represent fundamental psychosocial disorders. Specifically, I am referring to children with autism, who typically lack even minimal social skills. In work that I am doing with Gail McGee at the Emory University School of Medicine, we have been studying the nonverbal behavioral skills of preschoolers with autism. Among our findings in that research are that it not so much the quantity of emotional displays that differentiates typical children from those with autism. Instead, the children with autism display the same quantity of emotions as typical children; they just show their nonverbal displays within the wrong context (Feldman, Philippot, & Custrini, 1991; McGee, Feldman, & Chernin, 1992). Treatment techniques that take into

account the nonverbal skills of the children with autism might well result in favorable outcomes in other social domains, as well.

For now, though, the primary implications of the work I've discussed today remain on the socialization of nonverbal behavioral skills in typical children. Clearly, media exposure is related to both nonverbal decoding and encoding. Unfortunately, however, the research is primarily correlational: we do not know for sure the specific nature of the causal links between nonverbal behavior and media exposure. Obviously, our preferred explanation is that level of television exposure produces nonverbal proficiency. Just as obviously, further research is necessary.

Stay tuned!

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